

The North American Species of *Sarcophaga* belonging to the "A" Group¹ (Dip.: Sarcophagidae).

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Four species of *Sarcophaga* were included by Doctor Aldrich (1916, *Sarcophaga* and Allies. p. 67) in his provisional "A" Group. These were *S. sinuata* Mg., *S. cockerellae* Ald., *S. hincii* Ald., and *S. pulla* Ald. To these may be added *S. morosa* Ald. (1925. Proc. U. S. Nat. Mus. Vol. 66:26), and the two species herein described.

These species have the following characters in common: Three postsutural dorso-central bristles, genital segments black, and the hind tibiae of the male more or less villous.

Acknowledgment for the comparison of specimens with type material, and for the generous exchange of notes is due Dr. J. M. Aldrich, of the United States National Museum.

Key to Species.

1. Outer verticals well developed, first posterior cell closed or but slightly open in margin. (D. C., Va., Penna.)
minutissima n. sp. Fig. 1
- Outer verticals absent 2
2. Two sternopleural bristles present (Alta. Can.)
canadensis n. sp. Fig. 2
- Three sternopleural bristles present 3
3. Middle femora with whitish, yellowish, or golden patch of hair on outer front side (widespread—Northern U. S.)
sinuata Mg.
- Middle femora plain, without such spot 4
4. Second abdominal segment with pair of median marginal bristles which may be somewhat small or depressed 5
- Second abdominal segment without median marginal bristles 6
5. Middle tibiae with three antero-dorsal bristles, forceps thick with a long, slender tooth on tip (Colo., N. Mex., and British Col., Can.) *cockerellae* Ald.
- Middle tibiae with one large and one small antero-dorsal bristles, forceps slender with a small tooth on middle of the blunt tip (Lake Erie area) *hincii* Ald.
6. Accessory plate long and finger-like (Ohio, Penna.)
pulla, Ald.
- Accessory plate triangular (Ontario, Ohio) .. *morosa* Ald.

¹Contribution No. 374 from the Entomological Laboratory, Kansas State Agricultural College.

Sarcophaga minutissima n. sp. (Fig. 1).

Small; black; outer verticals developed.

♂. Front narrow, .161 of head (average of three .190, .160, and .133); parafrontals and parafacials silvery, the latter with the usual row of minute hairs below near eye, the lower two long and bristle-like; frontal bristles about eight, the lower few diverging to the middle of the second antennal joint; antennae black, third joint hardly twice second, reaching four-fifths

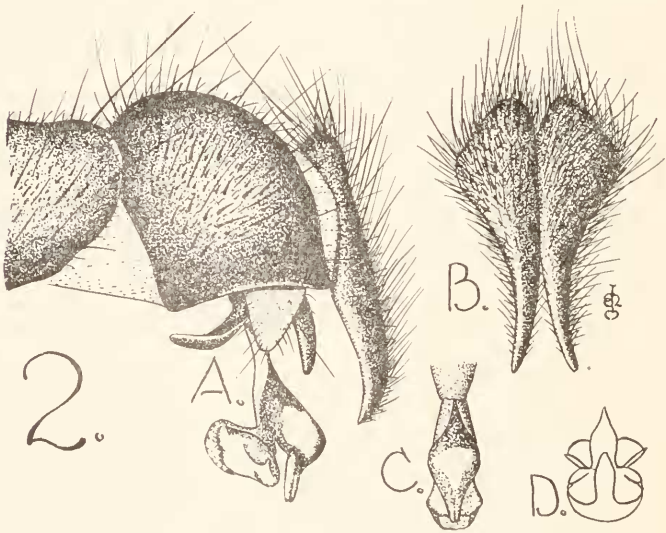
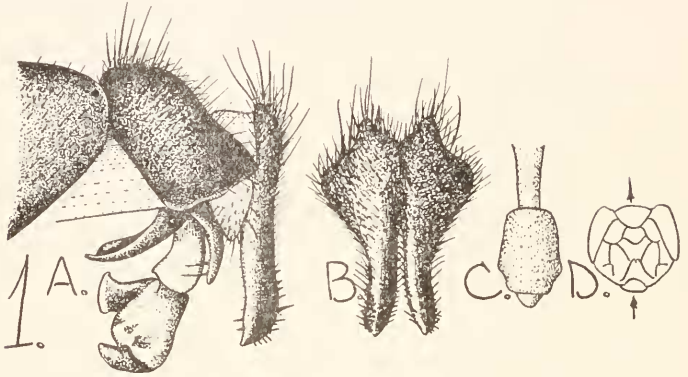


Fig. 1.—*Sarcophaga minutissima* Hall. Fig. 2.—*Sarcophaga canadensis* Hall. A. Left lateral view of hypopygial composite. B. Rear view of forceps. C. Rear view of penis. D. Tip of penis.

distance to the vibrissae which are normal and are at the oral margin; arista plumose for half its length; palpi and proboscis black, normal; bucca two-thirds eyeheight; back of head with two rows of post-ocular bristles, below with some pale hairs, none before the metacephalic suture; outer verticals distinct.

Thorax with the usual 3-5 black stripes; anterior acrostichals 2; prescutellars present, small and slender; postsuturals 3; sterno-pleurals 3, the intermediate rather small and hairlike; scutellum with two marginals, one subapical and one apical.

Abdomen thinly pollinose, the usual tessellation indistinct; second and third segments with median marginals; fourth with marginal row of about twelve; fifth sternite obscured.

Hypopygium shining black; first segment small, a few hairs in a posterior marginal row; second segment globose, shining black, clothed with numerous black hairs; forceps black, in rear view, behind diverging gently to tips, clothed with long curly hair, anterior edge straight with slight tip, posteriorly curved strongly forward at tip, behind at tip with a patch of minute spines; accessory plate triangular, more brown than black; posterior clasper black, curved slightly forward with several hairs on the anterior edge; anterior clasper black, curved strongly forward, the inner edge rolled toward outside; penis composed of two segments, first segment transparent white and curved somewhat forward, second segment with rounded anteriorly thick tip, forward, on each side two partially transparent plates or processes extending anteriorly, centrally one each side with a semi-transparent pad.

Wings anteriorly smoked brown; costal spine present; third costal segment shorter than fifth; first posterior cell closed or slightly open in the wing margin; first vein bare; third with several setulae.

Legs, black; middle tibiae with two antero-dorsal bristles; hind tibiae with sparse villosity.

♀. Front narrow, .254 of head (average of three .250, .231, .291); generally less pollinose than male; lacks the scutellar apicals; otherwise like male except for sexual characteristics. Length $3\frac{1}{2}$ -5 mm.

Three males and three females from the U. S. National Museum collection: two females, Rock Creek Park, DISTRICT OF COLUMBIA, August 19, 1927, C. H. T. Townsend; one male and one female, Falls Church, VIRGINIA, Aug. 27, 1912, C. T. Greene; one male, Rock Creek Park, D. C., May 1, 1919, G. E. Quinter; one female, Montebello, PENNSYLVANIA, Oct. 5, 1920, Champlain and Knull. *Holotype*, the Rock Creek Park

male in the U. S. N. M., No. 41910. *Allotype*—Female from the same locality in the U. S. N. M., No. 41911.

To the knowledge of the author, this is the smallest species of *Sarcophaga* to be described from North America. Notwithstanding the closing of the first posterior cell in the margin of the wing, chaetotaxy and genital similarities adhere it to the present grouping.

***Sarcophaga canadensis* n. sp. (Fig. 2).**

Small; tessellated; two sternopleurals.

♂. Front .333 of head in single specimen; frontal stripe narrow; frontal bristles about eight, the lower few diverging to the middle of the second antennal joint; parafacials and parafrontals silvery, the latter with the usual row of minute hair below near eye; antennae black, third joint two-thirds length of second, reaching three-fourths the distance to the vibrissae which are normal and are at the oral margin; arista plumose for half its length; bucca reddish and but slightly pollinose, one-third the eyeheight; palpi and proboscis black, ordinary; back of head with one complete and several scattered rows of black hair; outer vertical not differentiated; a few pale hairs around neck and below, none before the metacephalic suture.

Thorax with usual 3-5 black stripes, quite shining; anterior acrostichals 0; postsutural dorsocentrals 3; sternopleurals 2; scutellum with two marginals, no preapicals nor apicals.

Abdomen thinly pollinose, mostly shining black; first and second segments with lateral bristles only; third with median marginal pair, fourth with marginal row of about twelve; fifth sternite obscured.

Hypopygium black; first segment with a row of hair-like bristles on posterior margin; second segment quite hairy, shining black; forceps in rear gradually diverging to tips, with long curly hair at base; in profile gradually curving forward to sharp point; accessory plate triangular, more brown than black; posterior clasper black, slightly curved anteriorly; anterior clasper black, curved strongly anteriorly, its outside edge rolled inward; penis narrow at base, globose toward tip where two tube-like processes project downward, anteriorly with shoe-shaped protuberance which is white and semi-transparent.

Legs black; middle femora with anterior and posterior combs; middle tibiae with one antero-dorsal bristle; hind tibiae with villosity.

Wings sub-hyaline; no costal spine; third costal segment longer than fifth; first vein bare; third with several setulae.

Female unknown.

One male, Banff, ALBERTA, Canada, June 15, 1922, collected by C. B. D. Garrett and sent to the author by Mr. C. H. Curran from the Canadian Entomological Collections at Ottawa, Ont. *Holotype*.—In the Canadian Entomological Collections.

Three sternopleural bristles are found quite constantly in all the species of *Sarcophaga*. The presence of but two in *S. canadensis* should render the species easily recognizable in both the male and the female.

Although the genitalia of the male are quite unlike the other species within this group, and the species has but two sternopleural bristles, it should not be of generic or of sub-generic importance. *S. bisetosa* Parker has only two sternopleural bristles, but the genitalia of the species are almost identical to that of *S. cimbicis* Townsend, showing that the absence of one sternopleural bristle is not of generic significance.

SARCOPHAGA SINUATA Meig.

Meigen, 1828, Syst. Besch., V: 22—Europe.

Townsend, 1892, Trans. Am. Ent. Soc., XIX: 110-111.

Sarcotachinella intermedia.—Ill.

This is the most easily determined Sarcophagid occurring in North America. Both the male and the female have the outer front side of the middle femora with a brilliant whitish, yellowish, or golden spot.

S. sinuata is evidently a common species in this country. Specimens have been determined from New England to Oregon, and southward to northwestern Arkansas, apparently most common in the St. Lawrence River area. Bottcher stated that the species was widely distributed in Europe, but that it was apparently nowhere common.

SARCOPHAGA COCKERELLAE Ald.

Aldrich. 1916, Sarc. and Allies, p. 70, fig. 22.

The species is evidently not common. Beside the type specimens, one male has been seen from White Lake, BRITISH COLUMBIA, Canada, July 27, 1929, collected by Norman Criddle. *Holotype*.—Male No. 20495, U. S. N. M.

SARCOPIIAGA HINEI Ald.

Aldrich, 1916, Sarc. and Allies, p. 71, fig. 23.

Auten, 1925, Ann. Ent. Soc. Am. XVIII: 244. (Reared from nests of spiders, *Philodromus canadensis*, *Epeira sclopetaria* and *Aranca frondosa*).

The characters given in the key, separate this species from its closest ally, *S. cockerellae* Ald.

The species was first collected by Prof. J. S. Hine, at Cedar Point, OHIO, where it is commonly found during the summer. Dr. C. H. Kennedy of Ohio State University has collected for a number of years at Put-in-Bay, Ohio, and has found the species common on the islands. The author appreciates the donation of over one hundred males and females of this species which he collected there.

It is commonly reared from the nests of certain house-inhabiting spiders in the Lake Erie area, Miss Agnes Auten being the first to rear material extensively. Her report is noted above.

Holotype.—Male No. 20496, U. S. N. M.

SARCOPHAGA PULLA Ald.

Aldrich, 1916, Sarc. and Allied, p. 72, fig. 24.

Aside from genital peculiarities of the male, this species may be separated from all the species very closely related, with the exception of *S. morosa*, Ald., by the lack of median marginals on the second abdominal segment. From *S. morosa*, the species is most clearly separated by the shape of the accessory plate which is triangular in *S. morosa*, elongate and finger-like in *S. pulla*.

The type specimen of this species was collected in Westmoreland County, PENNSYLVANIA. Specimens have been collected at Cantwell Cliffs, OHIO, May 15, 1926, by the author.

Type. Male, Acc. 321, Carnegie Museum, Pittsburgh, Pa.

SARCOPHAGA MOROSA Ald.

Aldrich, 1925, Proc. U. S. Nat. Mus., Vol. LXVI, 26, fig. 1, d.

The type specimen of *S. morosa* was reared from a larva by F. Johansen, near OTTAWA, Canada, the fly emerging July 11, 1918. Specimens have been taken by the author at Miami County, OHIO, June 14, 1928, and Lucas County, Ohio, June 19, 1928. *Holotype*.—Male No. 27098, U. S. N. M.